DOCUMENT RESUME

ED 235 912 PS 013 925

AUTHOR Wessel, Dorothy
TITLE Reducing Problems in Fine Motor Development among Primary Children through the Use of Multi-Sensory Techniques.
PUB DATE Jun 82
NOTE 62p.; Practicum Report, Nova University, 1982. Pages 41-46 of the original document contain copyrighted pages and therefore are not available for inclusion in the pagination.
PUB TYPE Dissertations/Theses - Practicum Papers (043)

EDRS PRICE MF01/PC03 Plus Postage.
DESCRIPTORS Classroom Research; *Elementary School Students; Grade 1; *Handwriting; Intervention; *Motor Development; *Perceptual Motor Coordination; Primary Education; *Remedial Instruction; *Student Improvement

ABSTRACT

A 10-week classroom intervention program was implemented to facilitate the fine-motor development of eight first-grade children assessed as being deficient in motor skills. The program was divided according to five deficits to be remediated: visual motor, visual discrimination, visual sequencing, visual figure-ground, and visual memory. Each area of remediation received attention for 15 to 20 minutes daily over a 2-week period. It was anticipated that, as a result of program participation, students would advance 6 months in developmental level as assessed on pretesting and posttesting with the Developmental Test of Visual Motor Integration. Improvement in students' handwriting ability was also anticipated. Copy-a-sentence exercises were given each day, and handwriting samples taken at the beginning and conclusion of the intervention were compared. Results indicated each of the subjects exceeded the minimal predicted developmental gain. Females made greater age-equivalent gains than did males. Overall age-equivalent gains ranged from 4 years, 11 months to 7 years, 11 months. Near the sixth week of the program, the handwriting of each student began to improve; sentences written at the conclusion of the intervention were far superior to those written at the beginning. Recommendations for implementing the program were suggested. Related materials, including handwriting samples, are appended. (RH)

****
* Reproductions supplied by EDRS are the best that can be made *
* from the original document. *
****

U.S. DEPARTMENT OF EDUCATION
NATIONAL INSTITUTE OF EDUCATION
EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)
☐ This document has been reproduced as received from the person or organization originating it.
☒ Minor changes have been made to improve reproduction quality.
• Points of view or opinions stated in this document do not necessarily represent official NIE position or policy.

ED235912

REDUCING PROBLEMS IN FINE MOTOR DEVELOPMENT AMONG PRIMARY CHILDREN THROUGH THE USE OF MULTI-SENSORY TECHNIQUES.

by

DOROTHY WESSEL

"PERMISSION TO REPRODUCE THIS MATERIAL HAS BEEN GRANTED BY
Dorothy Wessel
TO THE EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)."

PS 013925

A Practicum Report
Submitted to the Faculty of the Center for the Advancement of Education of Nova University for the degree of Master of Science.

June/1982

I hereby testify that this paper and the work it reports are entirely my own. Where it has been necessary to draw from the work of others, published or unpublished, I have acknowledged such work in accordance with accepted scholarly and editorial practice. I give this testimony freely, out of respect for the scholarship of other workers in the field and in hope that my own work, presented here, will earn similar respect.

Reducing Problems in Fine Motor Development Among Primary Children Through the Use of Multi-Sensory Techniques.
Wessel, Dorothy J., 1982: Practicum Report, Nova University, Center for the Advancement of Education.
Descriptors: Perceptual Motor Coordination/Perceptual Motor Learning/Motor Development/Psychomotor Skills/Visual Perception/Multi-Sensory Techniques/Visual-Motor Integration/ Developmental Tasks/Evaluation Instrument.

A group of children directed by the author was involved in a program to reduce their inadequacies in fine motor development. Goals of the program were improvement in the visual-motor field and a grade level achievement in handwriting skills.

The project consisted of a daily period of intervention during which the developmental under-achievers were involved in manipulative and other visual-motor tasks in order to strengthen their abilities in fine motor development. This was followed by the taking of daily handwriting samples to measure that progress. End-results of set goals were deemed positive and similar programs were recommended for other primary classes to enchance motor performance of children deficient in that area. A Reference List and Bibliography are included as well as accompanying supportive material in the Appendices.

TABLE OF CONTENTS

	Page
TITLE PAGE	i
AUTHORSHIP STATEMENT	ii
ABSTRACT	iii
TABLE OF CONTENTS	iv
OBSERVER'S VERIFICATION	vii
SECTION I: PURPOSE	
A. BACKGROUND	1
B. PROBLEM	4
C. OUTCOME OBJECTIVES	9
SECTION II: RESEARCH	
A. SOLUTION STRATEGIES	11
B. STRATEGY DECISION	14
SECTION III: METHOD IMPLEMENTATION	16
SECTION IV: RESULTS EVALUATION	22
SECTION V: SUGGESTIONS FOR FUTURE IMPLEMENTATION	32

		Page
REFERENCE LIST		35
BIBLIOGRAPHY		36
APPENDICES		
APPENDIX A:	MAP OF AREA	37
APPENDIX B:	ADJUNCT MAP OF AREA	38
APPENDIX C:	ENVIRONMENT SCORES ON S.E.S.A.T., 1981	39
APPENDIX D:	TEACHER OPINION POLL CHECK-LIST	40
APPENDIX E:	VISUAL FIGURE-GROUND EXERCISE	41
APPENDIX F:	VISUAL MEMORY EXERCISE	43
APPENDIX G:	HANDWRITING SAMPLES	47

LIST OF TABLES

		Page
TABLE 1:	TEACHERS' ASSESSMENT	7
TABLE 2:	COMPARISON OF AGE EQUIVALENTS ON V.M.I.	24
TABLE 3:	STUDENT AGE EQUIVALENT COMPARISON	25
TABLE 4:	STUDENT MEAN AGE EQUIVALENT GAIN	26
TABLE 5:	STUDENTS' COPY-A-SENTENCE EXAMPLES	29
TABLE 6:	STUDENTS' COPY A-SENTENCE EXAMPLES	30

NOVA UNIVERSITY
CENTER FOR THE ADVANCEMENT OF EDUCATION
3301 College Avenue
Fort Lauderdale, FL 33314

OBSERVER VERIFICATION FORM

Verification of Practicum Activity

Dear Observer:

Practicum students in Nova's M.S. and Ed.S. programs are asked to provide external verification that the project activities reported in their final practicum documents took place as described. You have been designated an observer to fulfill this confirmation function by the student named below. On this sheet, then, please write a note attesting to your knowledge of the project activity described in the final practicum report to which this will be attached. (Note that you are not asked to evaluate, or make judgments about the quality of the project.)

Dorothy Wessel designed a program of intervention to improve fine motor development among a group of under-achievers in her class. The developmental program was conducted from early March, 1982 through May, 1982. The program involving motor development techniques was observed on a daily basis by me as we are in a team-teaching situation.

Practicum Title Reducing Problems in Fine Motor Development Among Primary Children Through the Use of Multi-Sensory Techniques.

Student's Name Dorothy Wessel

Program Site Miami, Fla. Date May 22, 1982

Observer's Name TARJA GEIS Tarja Geis
(Please print ---------- and sign)

Observer's position TEACHER GRADE ONE

SECTION I: PURPOSE

A. Background

The setting for this practicum was in an elementary school in southeast Florida. The school is located in an affluent, residential section about fifteen miles from urban Miami. The entire area lies on a vast amount of coral beds. The coral reefs exhibit themselves in the sliced, stone-like sides of the canal which winds in and out of the community. The canal is separated from Biscayne Bay by the locks at 168th Street. The street on which the school is located intersects Old Cutler Road to the east - a thoroughfare and a Miami landmark which is steeped in tradition and culture. Old Cutler is a panorama of elegant homes, beautiful seascapes, prestigious country clubs and fine private schools. The public school area is bounded to the south by 168th Street with the little town of Perrine to its back. Mitchell Drive - 144th Street, forms a northern boundary. Even the canals designate some boundary lines. Ludlum Road is a boundary to the east as is Dixie Highway to the west. The commuting enrollment comes from an area across Dixie Highway and a new adjunct community by Tamiami Airport was recently added to the school district from which children are also transported. (See school district maps in Appendices A and B)

The families in the non-commuting area are for the most part white professionals with incomes ranging annually from about fifty-thousand dollars upward. Many of the residents have college backgrounds. Homes in the neighborhoods range in value from about one-hundred and fifty-thousand dollars upward. Some examples of resident occupations are: business executives, air-line pilots, corporation heads and communication specialists.

The community of commuters is one of the better lower-middle to lower class neighborhoods in Miami. It is in close proximity to the school but the time involved in commuting is normally long, due to the great amount of children being transported. The people living there are hard-working non-professionals and professionals who display a great deal of civic pride in their community and in the community to which their children commute.

The school has a total enrollment of seven-hundred children. They come from lower-middle to lower class socio-economic strata as well as from an upper-middle class level. They are of white, black, Oriental and Hispanic origins, reflecting the multi-ethnicity of the area. While the Caucasion children come from homes within the immediate, elementary school neighborhood, the other children of various ethnic origins are, for the most part bussed to the school.

The children from both areas of residence are generally polite, well-behaved and academically oriented.

In the class itself there is a total of twenty-seven children. And it cross-groups with an adjoining first-grade of twenty-seven children. The cross-grouping situation involves the writer instructing in Math, Social Studies, Health and Safety while her team-mate teaches all of the Language Arts. The children change rooms in the morning, at noon and at dismissal time in order to receive adequate instruction in each discipline of the curriculum. Due to a genuine rapport exisiting between the team-teachers, the classes perform as a unit in almost every area of the curriculum. There is a true camaraderie among the students as well as between the teachers and hence, academics are pursued in a serious but fun-loving way.

B. Problem

It has been the observation of this writer that many primary children experience difficulties with activities involving fine motor ability. To those who have worked with children for many years, problems in that area of child development are obvious. They are evidenced by the way a child holds a pencil or crayon, plays with blocks or other manipulatives, draws or paints a picture, holds a writing paper down, uses scissors and paste, positions puzzle pieces or simply claps his hands. In all of these manipulations there seems to be a prevailing awkwardness impeding progress and development in many areas of the curriculum.

After a review of the literature on children with visual-motor deficits, the following sources note: these children cannot coordinate such fine muscles as those required in eye-hand tasks, eye movement activities, and spatial and form perception activities. They may exhibit clumsiness, confused directional sense, reversal and sequencing problems, difficulties with left-right orientation, middle-crossing and errors in telling time. Beiler (1976) Stuart (1982) brings attention to..."A noteworthy ten per

cent or more of our children with average or better than average intelligence who have specific language disability in reading, spelling and writing...". Again Beiler (1976) points out: "Fine motor problems reflect children's inability to hold pencils, write, cut, paste or manipulate objects".

Roach and Kephart (1966) were concerned with children who do not possess perceptual motor abilities necessary for acquiring academic skills. They initiated a direct-action approach to non-achiever problems by providing alternative plans which involved the use of manuals and assessment tools to pin-point early perceptual motor problems.

Some underlying causes of difficulties in perceptual motor ability that should be considered are: the structured, cognitive-oriented curriculum in the primary grades and the overwhelming influence of visual attendance by young children watching television at home or in the classroom. Both of these are seen not so much as contributing factors per se but rather as de-emphasizers of perceptual motor development in the classroom. Realistically, what primary teacher has time left over in the cognitive-oriented curriculum for perceptual development - gross or fine motor? Particularly in the kindergarten where there are highly sophisticated reading programs for four-and-a-half to

five-and-a-half year old children (SWIRL, etc.). It follows that what has to go is the greater amount of time given to the perceptual motor development of those students. Also, children enter school with more visual experiences from having watched television than from other sensory experiences over their entire seventy-two months sojourn on planet earth. They seem visually oriented to the point of exclusion of the other important areas of sensory development that would make for total all-around development.

In the locale of the writer's classroom, eight children or thirty per-cent of a class of twenty-seven children were seen as deficient in fine motor development. Kindergarten grades in the school are S's and U's (Satisfactory and Unsatisfactory). Thus, these grades alone were deemed too vague for the purposes of pointing out any degree of achievement or under-achievement in these children. Rather then, the examination of the cumulative record comments written by their previous teachers documented the existing problem of under-achievement in all areas - developmental as well as academic. Basically, though, the existing problem of a lack of fine motor development among the target group was supported by their Environment scores on the Stanford Early School Achievement Test (S.E.S.A.T.), an achievement test given children in the latter part of kindergarten. (See Appendix C) To further substantiate

an existing problem of difficulties in fine motor development among primary children in general in this locale, the writer collected tabulated responses to a paper and pencil survey which was given to other primary teachers in the school in order to assess their feelings on deficiencies in this area. (See Appendix D)

The results of that poll which involved eleven teachers, indicated quite supportively that they unanimously saw problems in fine motor development among their students. A more comprehensive break-down of the rankings of their students' abilities is shown in Table 1.

TABLE 1

TEACHERS' ASSESSMENT

Do you as a K-2 teacher see problems in fine motor development among your students?

yes	no
100%	0%

How do you rank your students' abilities in the following skills which are indigenous to the primary curriculum? Please check.

	Good	Fair	Poor
Building with blocks	27%	46%	27%
Cutting and pasting	0%	54%	46%
Painting	0%	54%	46%
Drawing	0%	54%	46%
Tracing patterns	0%	64%	36%
Working puzzles	0%	73%	27%
Modeling clay	0%	82%	18%
Other arts and crafts activities	0%	36%	64%
Handwriting	0%	46%	54%

The eight children who were designated as the target group came from homes in the community area of the writer's first grade enrollment. They arrived at school very early in the morning and had their breakfasts in the school cafeteria. At other times they drifted in late, due to transporation problems. Their attendance was erratic, they lacked enthusiasm and they were not easily motivated.

The Primary Education Program (P.R.E.P.) is a diagnostic prescriptive program now in operation in the Florida Schools. Its purpose is readying kindergarten through third grade children for the State Assessment Test which is given in the third grade. P.R.E.P. directs that there be preventative, developmental and enrichment groups in the area of the basic skills. Children are placed in these strategies according to their stanines from the S.E.S.A.T. or S.A.T. (Stanford Achievement Test) and/or teacher judgement. The stanines for the Preventative group are 1-3; the Developmental group, 4-7; the Enrichment group, 8-9. P.R.E.P. also limits first grade enrollment to 22.4 children. However, that figure was not adhered to with these classes due to teacher-ratio problems in the school. P.R.E.P. is important, but is mentioned here only in as much as the eight children involved in the practicum were from the Preventative group. That is, their scores on the S.E.S.A.T. which was administered to them in kindergarten fell within the 1-3 stanine rank and/or they were placed there by teacher judgement.

C. Outcome Objectives

It was projected that over a period of ten weeks, the target group or the thirty per-cent of the class which was deemed deficient in fine motor development would improve at least six months developmentally or more. This would be determined by the comparison of scores from a pre-test and a post-test on the Developmental Test of Visual Motor Integration (V.M.I.). The pre-test was administered the second week of March and the post-test was given in the last week of May. It is pointed out that assessment of progress on the V.M.I. is from raw scores equated to years and months, hence, the forecast of six months developmentally.

Over the same period of time, the target group would, hopefully, improve in handwriting as evidenced by teacher observations of handwriting samples taken at the beginning of the practice and compared with those taken at the conclusion of the intervention. These copy-a-sentence exercises were given each day and some samples of them are included in the appendices of this practicum report. The criterion of assessment for the group was grade level or above grade level as determined by the writer.

Finally, the most comprehensive evaluation of assessment would be the writer herself. Due to the developmental nature

of the study, it would be fairly impossible to calculate the results mathematically as in arithmetic or in spelling. However, an assessment of progress, good or poor, was seen as pertinent to the outcome. Together with this assessment, attitudinal outcomes of better self-concepts, enthusiasm and motivation were observed throughout the strategy by the writer.

SECTION II: RESEARCH

A. Solution Strategies

After collecting information on the subject of problems in fine motor control and attempts at remediation, the other team-teacher in the grade level was consulted. The team-teacher, knowing the target group and its deficiencies in the area as well, concurred with the writer on the selected strategy for implementation.

In reviewing the literature some interesting interdisciplinary approaches were discovered. Bush and Giles (1969) used a perceptual-motor survey to detect problems in the psycho-motor area, even though their main interests lay in the psycholinguistic domain. Much of their work was with imitation of movement, remedial exercises for specific body parts and perceptual motor skills.

Roach and Kephart (1966) employed the Perceptual Motor Survey as a tool in the early identification of motor problems. As opposed to the psycholinguistic techniques of Bush and Giles (1969), they concentrated on gross motor solutions almost entirely.

Cedoline (1972) chose to employ a standard information check-list for parents to gauge their child's progress in such areas as visual perceptual and motor development.

The scores, interpretations and recommendations provided help to the parents in better understanding how their child compared to other beginning school children.

Cowles (1969) studied the effectiveness of specific visual perceptual training on readiness scores with first grade pupils. Over a nine-week period, three classes of children including a control group, participated. The results proved the effectiveness of the Frostig Developmental Program in Visual Perception which had been implemented.

Project See (1979) was designed as a structured kindergarten and first grade program for the development of visual perception. Short daily lessons were given simultaneously to an entire class and were centered around a set of forty cards containing various lines and shapes. Children were asked to analyze and describe the elements on the cards, locate these elements on the cards and replicate the design on a work sheet. They were pre-tested and post-tested in an attempt to show growth generated by the pilot program. Positive results were found, however, indications were that training should continue for more than a year.

Sall (1975) developed, implemented and evaluated a transportable gross motor skills development program for kindergarten and primary children. The practice involved materials, workshop and parent training and was implemented for three thirty minute class periods weekly for sixteen weeks in eight K-3 grade classes. Pre-testing and post-testing of motor skills were done and the results indicated

that the children as a group were able to achieve a higher level of skill in the areas tested after participating in the program. Recommendations for extending the program were then offered.

B. Strategy Decision

Some of the alternative strategies found in the review of the literature were available to the writer. Due in part to the lateness of the school year and to a cognitively structured curriculum, another course of action was taken. Chaney and Kephart (1968) maintain that in physical growth and development there is a progression from general to specific action, from gross to specific refined control. So it seemed logical and interesting to pursue gross motor strategies at the beginning of the school year. Therefore, this writer in the spring of the year, chose to improve fine motor development within the target group.

It seemed reasonable to assume that the aforementioned strategy when pursued within the limited locale of a first grade classroom would prove beneficial to the area of development deemed deficient. The target group then was provided a program that was designed to enhance capabilities in the area in which it was weakest.

Through parent conferences it was announced that the group was pursuing a special course of action designed to improve development. The cooperation of the team-teacher

was asked as there were changes seen in scheduling. Materials of a multi-sensory nature were collected to be used with the target group. And the plan was implemented as presented in the following section.

SECTION III: METHOD

A. Implementation

The implementation of the selected strategy for the solution of the problem involved a ten-week in-depth program designed to accelerate fine motor development in the target group. The writer planned and directed the given tasks with the group. It was hoped that the assigned tasks would, at the end of the program, cause noticeable improvement in fine motor development with the participating children. The practice was programmed for the first period of the day following opening exercises. It was limited to about fifteen to twenty minutes daily. The other children in the class were provided with meaningful experiences at this time. The principal was notified as to any changes in scheduling. And parent volunteers were asked to participate.

The program was divided into five areas of deficits to be remediated. The areas, in sequential order were: visual motor; visual discrimination; visual sequencing; visual figure-ground; and visual memory. Efforts in remediation were concentrated within a two-week time slot for each deficit area.

The following tasks and materials were some of those that were employed in each deficit area:

Visual motor - finger painting; tempera painting; sorting objects; using sewing cards; crumbling paper; playing with blocks; modeling clay; working puzzles; squeezing rubber balls; maneuvering clothes pins; making figures from pipe cleaners; using peg-boards; playing finger games; cutting and pasting; doing finger exercises; clapping hands to rhythm; using pick-up sticks; drawing around stencils; pitching bean bags; throwing darts; shooting marbles; and screwing lids on jars.

Visual discrimination - separating pennies, nickels, dimes or nails of various sizes into piles; sorting items according to color, shape and size; drawing lines around words for configuration purposes; finishing simple drawings with missing parts; copying designs with beads or felt materials; and sorting and categorizing items of various textures.

Visual sequencing - stringing beads that follow a certain sequence; patterning; making paper chains; finishing pre-set patterns; using ditto sheets of geometric designs that entail following pre-set patterns; following dot-to-dot pictures; and unscrambling sentences.

Visual figure-ground - practicing with mazes; detecting hidden pictures; circling smaller letters from larger letters; following pathways on paper; working puzzles and playing sorting games. (See Appendix E for work samples used)

Visual memory - feeling beads, blocks and felt forms and reproducing their shapes on paper after the materials have been removed; playing games that involve memorization;

using sheets where students are to supply the missing parts; matching like object; completing visual series and copying designs or pictures; and using clay to model objects seen and taken away. (See Appendix F for work samples used)

The materials used were teacher-made as well as on-hand school materials that were used in the site. Supplementary materials were obtained from the Florida Diagnostic Learning and Resources Systems.

Implementation tasks that accompanied the intervention strategies are listed in the following sequence.

1. Selection of general problem area and search of the literature for solution strategies... December 1981.
2. Collection of materials and writing of general format...December 1981.
3. Writing of Practicum Proposal...January, February 1982.
4. Typing and mailing of Practicum Proposal...March 1982.
5. Implementation of practicum strategies...March-May 1982.
6. Communicating of expectations and intervention plans to parent volunteers...March 1982.
7. Distributing of pencil-paper survey to primary teachers in the site...March 1982.
8. Ordering of supportive materials from Florida Diagnostic Learning and Resources Systems...March 1982.
9. Developing of basic materials to be used in the intervention strategy...March 1982.

10. Pre-testing of the target group with the V.M.I. test...March 1982.
11. Implementing of individual student folders for data collection...March-May 1982.
12. Monitoring of students' progress...March-May 1982.
13. Compilation and evaluation of data from test results...May 1982.
14. Writing of practicum report...May-June 1982.
15. Completion of practicum report and presentation to reviewer...June 1982.
16. Generalizing results to similar problems with another group of under-achievers or with a greater number of students...September 1982.

An explanation of the sequential implementation tasks seems in order. The selection of the general problem area was not too difficult as the writer welcomed the opportunity to implement intervention strategies of a developmental nature with a group of her students. The search of the literature for solution strategies to the problem was found equally intriguing. Both of these tasks were pursued in December, 1981. Also, during that month a collection of materials was begun and long-range plans were outlined as bases for the study. The materials used, as previously stated, were obtained from Florida Diagnostic Learning and Resource Systems, from a kindergarten and from the personal resources of the writer. During February a proposal was drafted that was used as

a blue-print for all intervention-connected strategies. It was evaluated and accepted by the advisor in March, 1982.

To clarify the method by which the implementation of practicum strategies was conducted, the writer wishes to emphasize that at all times during the practice, concentration upon the five deficit areas of intervention was strictly adhered to. It was thought that those were the trouble spots in each of the target children to remediate developmentally.

The activities for the most part were presented in the sequence as they are outlined. Any deviation from that order was only because of the unpredictability of the age-group involved. Any repetition of designated activities was also due to the omni-presence of that variable. Thus, an over-view of the implementation period sees a program highly structured in design but out of necessity flexible on application, in deference to the youth it was serving. Not many problems in implementation due to the strategy, were encountered. However, first grade children are not always receptive to programs,whether or not those programs are well-designed. Hence, the writer always kept in mind the developmental age levels of the children whom she was striving to assist.

During March, only some communicating of expectation and intervention plans to parent volunteers was done. The parents of the target children expressed only token interest in the program and so any cooperation from that source was at low ebb. This was directly attributed to apathy on their part and to

the fact that the parents of those children were working mothers who could not participate.

A pencil-paper survey of primary teachers' opinions on development was taken during that month also. The results of that poll are shown in Table 1 page 7 of the Problem.

Pre-testing of the target group with the V.M.I. test was conducted during the first week of March. The outcome of that pre-testing is given in the Results Section of this paper.

On-going records for monitoring student progress were compiled in the form of individual student folders. The assessment of the folders was done on a daily basis from March - May 1, 1982.

The implementation of the intervention strategy in development was conducted over a period of ten weeks, from March 8 to May 21, 1982. At that point in May, the practicum report was begun in order to assess and evaluate the results of implementation.

SECTION IV: RESULTS

Evaluation

It was the sole responsibility of the writer in coordinating evaluative procedures, to determine whether the objectives had been met. Results were measured against the criteria stated in C. Outcome Objectives of Section I: Purpose. This procedure began in May when the Developmental Test of Visual-Motor Integration was re-administered to the target group for comparison of the students' developmental scores then with those of the V.M.I. Test which was given in March.

The V.M.I. is a series of twenty-four geometric forms to be copied with pencil and paper. The forms are arranged in order of increasing difficulty. The test can be administered to children in the age range of two to fifteen years, but it was designed primarily for use in pre-school and in the early primary grades. It can be administered to a group or to an individual. The test was devised as a measure of the degree to which visual perception and motor behavior are integrated in young children. The copying of geometric forms is well-suited to this purpose for there is a close correlation between the visual perception and the motoric expression that is required and because, unlike letter forms, geometric forms are equally familiar to children of varying backgrounds.

Scores on the test are related more to integrative functions than to individual functions, which suggests that the V.M.I. is a measure of a child's coordinating abilities. And it has been found in using the test that correlations with mental age and chronological age are higher in first grade children than in older children. In this test, raw score is based upon the total number of forms passed, up to three consecutive failures. Total raw scores then correspond to a developmental age equivalent.

Each of the children in the target group far exceeded the minimal predicted developmental gain of six months. The females in the study made greater age equivalent gains than did the males. Over-all age equivalents rose from four years and eleven months to a high of seven years and eleven months. Thus, the developmental ages individually as well as by group, approached the more normal developmental age of first grade children. The first major objective as stated in C. Outcome Objectives of Section I: Purpose, to raise the developmental ages of the children in the target group by at least six months, had been successfully met. Each child's developmental age had risen higher than that of the target goal. A comparison of age equivalents of the target group at pre-testing in March as compared with the age equivalents of the same group after intervention and post-testing in May is shown in Table 2.

Table 2

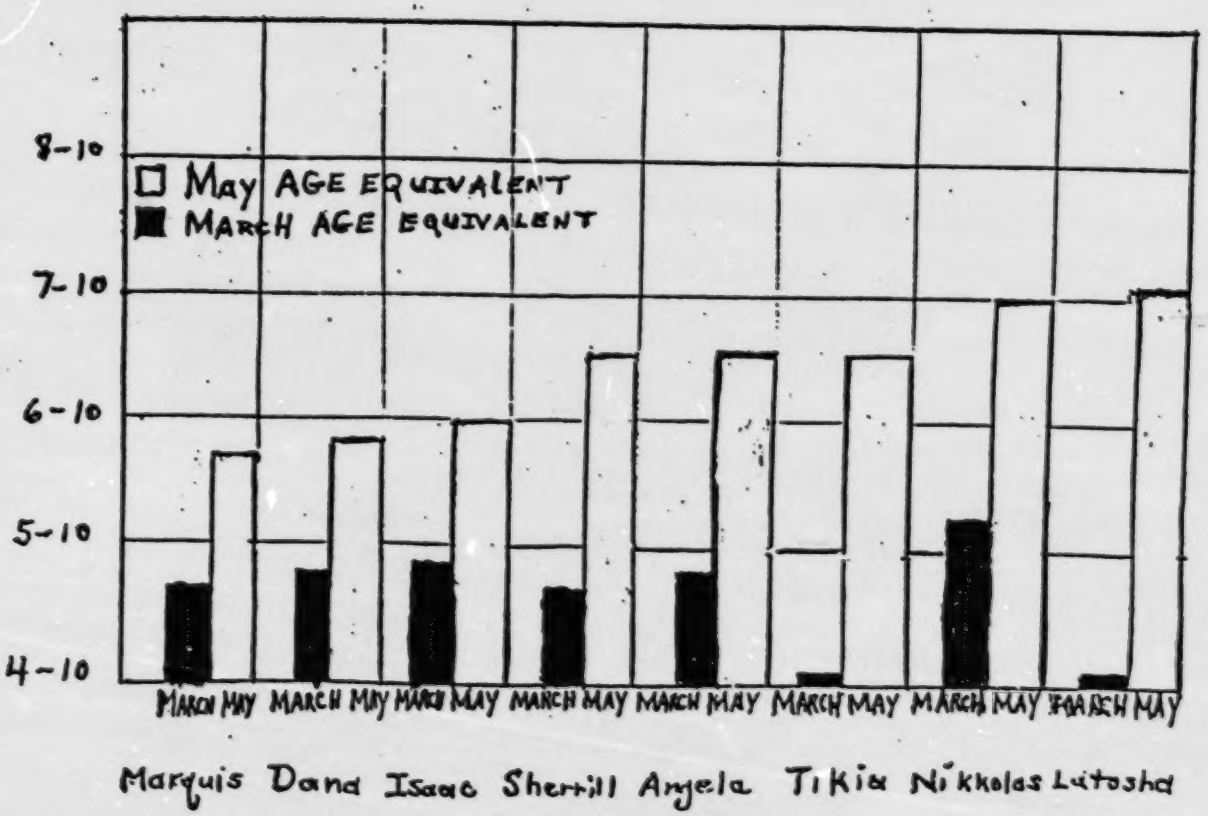
COMPARISON OF STUDENT AGE EQUIVALENTS ON V.M.I. - 1982

Student	March Age Equivalents			May Age Eqivalents		
	Years		Months	Years		Months
Latasha	4	-	11	7	-	11
Tikia	4	-	11	7	-	2
Angela	5	-	6	7	-	2
Isaac	5	-	7	6	-	10
Dana	5	-	6	6	-	7
Nikkolas	6	-	0	7	-	10
Sherrill	5	-	3	7	-	2
Marquis	5	-	3	6	-	5

A comparison of age equivalents of the target group in March, 1982 with the age equivalents in May, 1982 is shown graphically in Table 3.

TABLE 3

COLUMN CHART OF STUDENT AGE EQUIVALENT COMPARISONS



The mean age equivalent gain after the comparison of pre and post-test equivalents on the V.M.I. was 3.0 years, which seemed high for the ten week period of intervention, but reflected a normal developmental age for first grade children as seen in the May age equivalents. See Table 4 for the mean age equivalent gain given for each student.

Table 4

STUDENT MEAN AGE EQUIVALENT GAIN

Student	Gain	
	Years	Months
Latasha	3	0
Tikia	2	3
Angela	1	8
Isaac	1	3
Dana	1	1
Nikkolas	1	10
Sherrill	1	11
Marquis	1	2

The second major component in the practicum objectives, as stated previously, was to improve handwriting. Evaluation was affected by teacher observation of copy-a-sentence samples taken at the beginning of the practice as compared with those seen at the end of the period of intervention.

Due to the team-teaching strategy that existed, the teaching of handwriting as a subject was not one of the writer's duties. That task, in the domain of Language Arts, was taught by the other team-teacher. Certainly handwriting errors in the areas of Social Studies, Science, Health, Safety and even in Math were corrected when they appeared, by the writer. However, there was no designated time slot in the daily schedule for Handwriting per se.

Because of the teaching arrangement, it was thought that an assessment of handwriting samples (simple sentences) taken from the target group at the end of each developmental session would be a valid instrument of evaluation. A folder containing samples of each child's efforts was helpful to the writer in evaluating on a daily basis.

Blatant incongruities in handwriting samples were observed during the period of intervention. Lack of directionality, poor letter formation, disregard for punctuation, deletion of letters and words, erasures, reversals and inattention to capitalization were only some of the infractions noted.

It was observed that at about the sixth or seventh week into the study, the handwriting of each child in the target group began to show improvement. It became apparent after

surveying all of the handwriting samples collected, that in comparison, the sentences written at the conclusion of the period of intervention were far superior to those written at the beginning of the study. The reader will see that improvement, if a comparison is made of handwriting samples written during the first weeks of intervention in March, with those written during the last weeks of the practice, in May. (See Tables 5 and 6)

Table 5

EXAMPLES OF STUDENT'S COPY-A-SENTENCE
DURING
THE PERIOD OF INTERVENTION

Week	Student - Latasha
1	Toda is Monday
2	We will haave music today
3	We like to read.
4	Happy Birthday Mrs Geis
5	We are going to the hip.
6	Pirate's Day was great fun!
7	Spring is in the air!
8	What time is it?
9	Flowers are in bloom now.
10	Today is Friday, May 21.

Week	Student-Tikia
1	Today is Monday
2	We will have music today.
3	We like to read. 17
4	Happy Birthday Mrs Geis!
5	We are going to the ship.
6	Pirates Day was great fun
7	Spring is in the air!
8	What time is it?
9	Flowers are in bloom now.
10	Today is Friday, May 21.

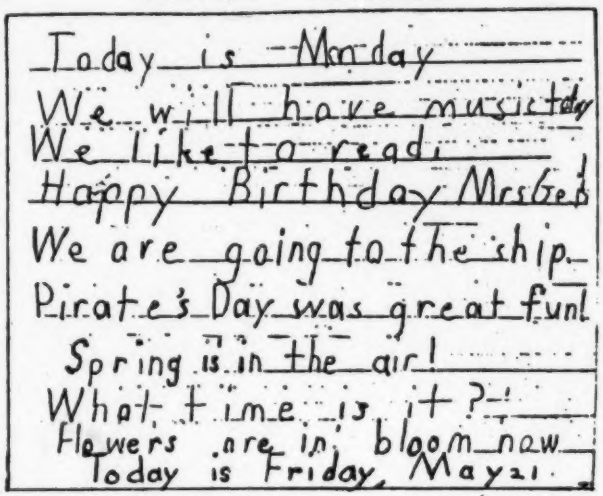
Week	Student - Angela
1	Today is Monday
2	We will have music today
3	We like to real
4	Happy birthday Mrs Geis!
5	We are going to the ship.
6	Pirate's Day was great fun!
7	Spring is in the air!
8	What time is it?
9	Flowers are in bloom now.
10	Today is Friday, May 21.

Week	Student - Marquis
1	Today is Monday
2	We will have music today
3	We like to read
4	Happy Birthday Mrs Geis!
5	We are going to the ship.
6	Pirates Day was great fun!
7	Spring is in the air!
8	What time is it?
9	Flowers are in bloom now.
10	Today is Friday, May 21.

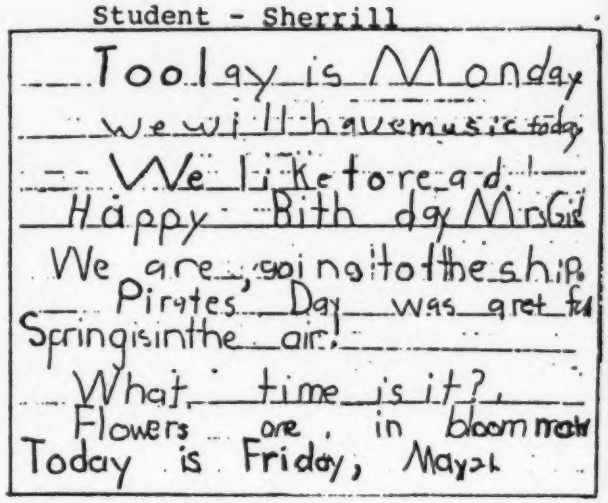
Table 6

EXAMPLES OF STUDENT'S COPY-A-SENTENCE
DURING
THE PERIOD OF INTERVENTION

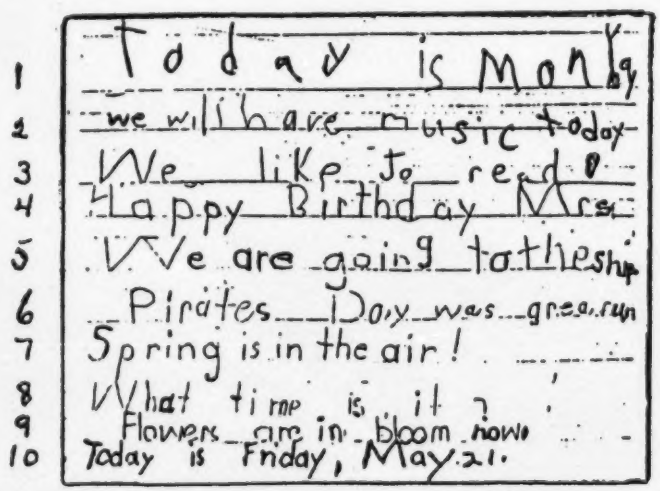
eek Student - Nikkolas


1 Today is Monday
2 We will have music today
3 We like to read.
4 Happy Birthday Mrs Geis
5 We are going to the ship.
6 Pirate's Day was great fun!
7 Spring is in the air!
8 What time is it?
9 Flowers are in bloom now.
0 Today is Friday, May 21.

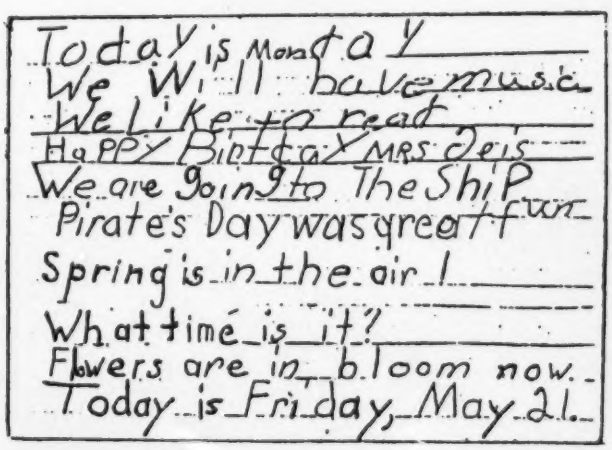
Week Student - Sherrill


1 Toolay is Monday
1 we will have music today
3 We like to read.
4 Happy Bith day Mrs Gei
5 We are going to the ship.
6 Pirates Day was a ret fu
7 Springisinthe air!
8 What time is it?
9 Flowers are in bloom now
10 Today is Friday, May 21

Week Student - Dana


1 Today is Monday
2 we will have music today
3 We like to read
4 Happy Birthday Mrs
5 We are going to the ship
6 Pirates Day was great fun
7 Spring is in the air!
8 What time is it?
9 Flowers are in bloom now
10 Today is Friday, May 21.

Week Student - Issac


1 Today is Monday
2 We Will have music
3 We like to read
4 Happy Birtday Mrs Geis
5 We are going to The Ship
6 Pirate's Day was great fun
7 Spring is in the air!
8 What time is it?
9 Flowers are in bloom now.
10 Today is Friday, May 21.

It was concluded that though widely varying in degree of improvment, each child had successfully attained grade level in handwriting. Some general examples of copy-a-sentence handwriting that were collected during the period of intervention are seen in Appendix G.

While evaluating the progress of the students who were involved in the study, some observations were noteworthy. Side-effects were very pronounced. Most of the children in the target group showed more enthusiasm than they had shown previously and they developed greater self-esteem. They were also more easily motivated in all areas of the curriculum. The group which was known as "Topsy" (named for expeditious purposes as well as for affective over-tones) became somewhat of a status symbol in the classroom. Many of the other children in the class questioned their exclusion from the strategy group. They seemed perplexed at the extra time and attention the small group was receiving. Compensation on the part of the writer had to be made to the other members of the class due to the enigma that prevailed in their minds. After awhile rival feelings waned and the target group functioned harmoniously and with the absence of animosity from anyone in the class.

SECTION V: RECOMMENDATIONS

Suggestions for Future Implementation

Since success was experienced in a relatively short period of time with a small group of students, it would seem advisable to incorporate a similar program in the curriculum to be used over a longer period with a greater number of children. This plan of action will be initiated in September of 1982 with another class. As that is the beginning of the school year it is anticipated that even more developmental gain may be shown by another group and that there may be more carry-over to other subject areas as well. This would give a greater percentage of the class that developmental boost necessary for more academic programs throughout the school year.

Some of the other teachers at the primary level who were knowledgeable of the on-going practice are interested in weaving a similar program into their curricula. They have expressed the desire to meet with the administration on a grade-level basis to gain permission for the time allotment and the supportive materials necessary to the strategy.

The administration and others are curious to see if the target group shows any marked gain in stanine scores on the

Stanford Achievement Test which was given in April. If the stanines have risen, some serious thought may be given to re-shaping the first grade curriculum from a developmental approach.

There were no major problems encountered during the period of intervention, due to the strategy, nor was there any noted disruption of activities within the classroom. On the contrary, the on-going strategy made for more cohesiveness and for greater harmony among the students.

Recommendations to any reader who would adopt such a plan are offered.

1. Have the full cooperation of the team-teacher if one is in that strategy. This is suggested out of courtesy. Also ideas might be forthcoming from an associate that could be must helpful in the strategy.
2. Have the cooperation of the administration.
3. Solicit parental assistance.
4. Involve the students regularly in decision-making.
5. Motivate the group and maintain a regularity of routine. This is paramount for the implementation of a program that serves six year olds. Group entnusiasm for activities should be fostered and the challenge presented to aim

for daily improvement in the developmental strategy, as well as in other tasks that might require manual dexterity (e.g. handwriting).

6. Have planned activities and materials available.

It is highly probable that others could repeat the strategy with only minor adjustments and experience success. One, however, should bear in mind at all times to offer to the students a highly imaginative, well-planned but flexible program.

REFERENCE LIST

Cowles, James D., An Experimental Study of Visual Preceputal Training and Readiness Scores with Certain First-Grade Children. Paper presented at the American Educational Research Association Meeting, Los Angeles, Calif., 6 February, 1969.

Sall, Nona G., A Gross Motor Skills Development Program for Children in Kindergarten and Primary. Practicum Report. Nova University. 1 March, 1975

Union Township Board of Education. Learning To See is Seeing To Learn: A Second Year Report of Title 3 Project See. Trenton, N. J. 1973.

BIBLIOGRAPHY

Beiles, Ruth, "The Learning-Disabled Child and the Classroom Teacher" in Perspectives in Learning Disabilities, ed. by Brian T. Jordan. San Raphael, California, Academic Thereapy Publications, 1976.

Bush, Wilma Jo and Giles, Marion Tyler. Aids to Psycho-linguistic Teaching. Columbus, Ohio, Charles E. Merrill Publishing Company, 1969.

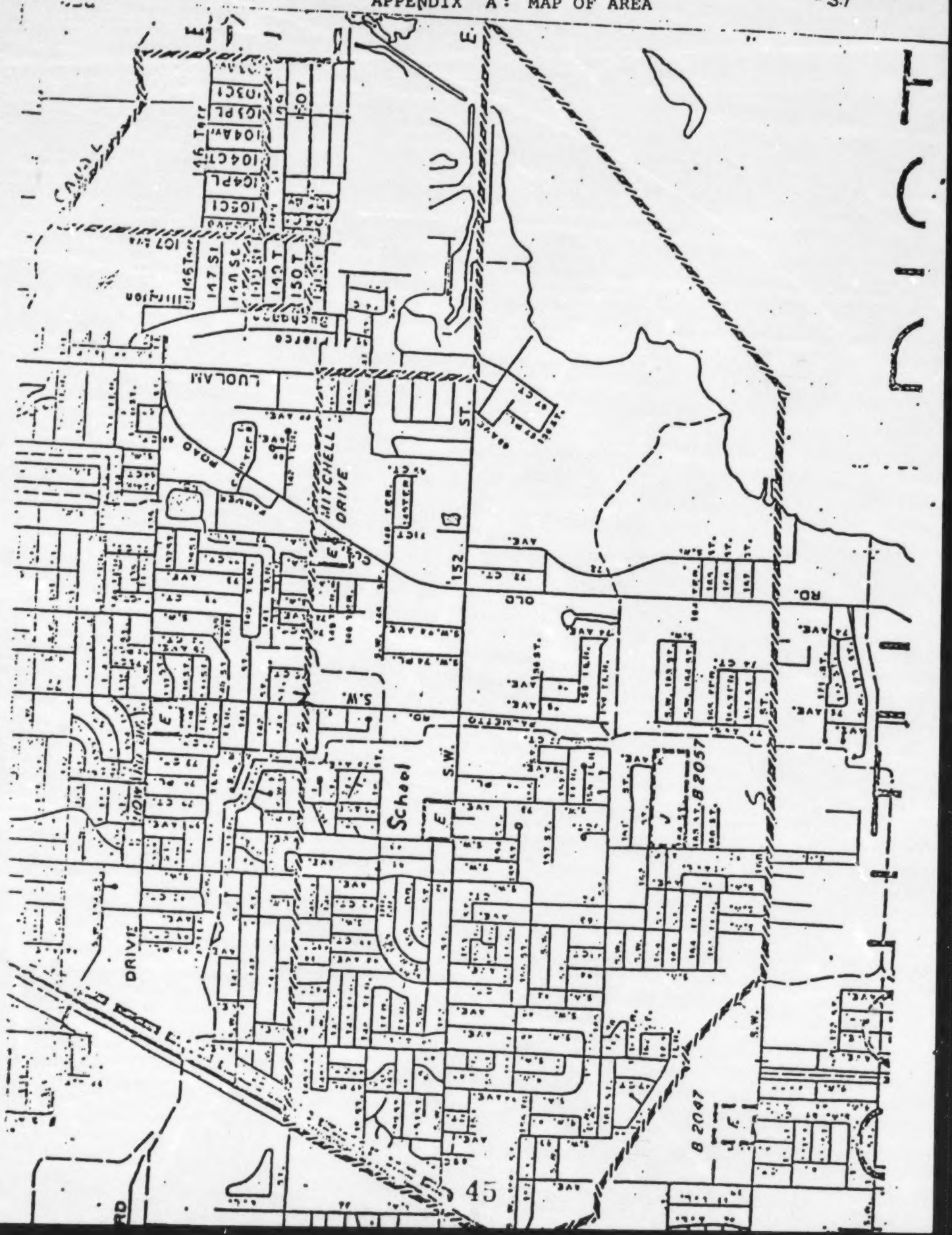
Cedoline, Anthony J., A Parents Guide to School Readiness. San Raphael, California, Therapy Publications, 1972.

Chaney, Clara M., and Kephart, Newell Co., Motoric Aids to Perceptual Training. Columbus, Ohio. Charles E. Merrill Publishing Company, 1968.

Cowles, James D., An Experimental Study of Visual Perceptual Training and Rediness Scores with Certain First-Grade Children. Paper presented at the American Educational Research Association Meeting, Los Angeles, California, 6 February, 1969.

Roach, Eugene C., and Kephart, Newell Co., The Purdue Perceptual Motor Survey. Columbus, Ohio. Charles E. Merrill Publishing Company, 1966.

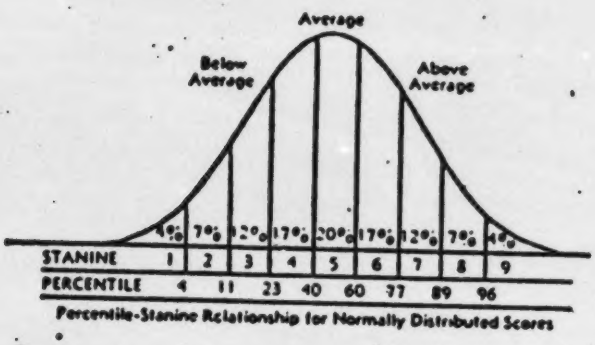
Stuart, Marion Fenwich, Neurophysiological Insights Into Teaching. Palo Alto, California. Pacific Books, 1965.


LUDLAM
ROAD
MITCHELL
DRIVE
School
DRIVE
B 2057
B 2047

LINCOLN
AVE.
NEW TAMIAMI AIRPORT
Adjunct School Area
To Krome Avenue

APPENDIX C

- ENVIRONMENT SCORES ON S.E.S.A.T., 1981



Percentile-Stanine Relationship for Normally Distributed Scores

TARGET GROUP	ENVIRONMENT SCORES	
	Stanine	Percentile
Tikia	2	06
Nikkolas	4	26
Dana	4	23
Angela	4	34
Isaac	3	12
Marquis	2	10
Sherrill	2	11
Latasha	4	23

The other nineteen students in the class had stanines ranging from 5-9 and percentiles ranging from 50-99 on the Stanford Early School Achievement Test.

APPENDIX D

TEACHER OPINION POLL CHECKLIST

Opinion Poll of Teachers to Determine the Existence of Problems in Fine Motor Development Among K-2 Children in Our School.

Do you as a K-2 teacher see problems in fine motor development among your students? yes _____ no _____

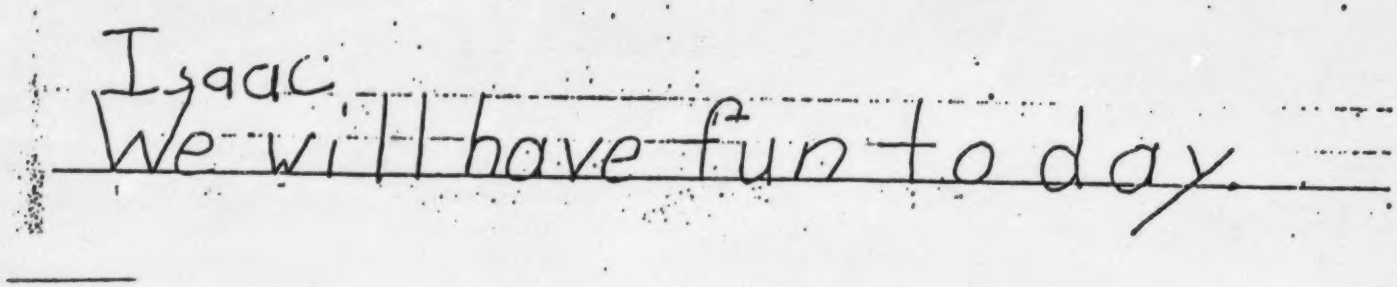
How do you rank your students' abilities in the following skills which are indigenous to the primary curriculum? Please check.

	Good	Fair	Poor
Building with blocks	____	____	____
Cutting and pasting	____	____	____
Painting	____	____	____
Drawing	____	____	____
Tracing patterns	____	____	____
Working puzzles	____	____	____
Modeling clay	____	____	____
Other arts and crafts activities	____	____	____
Handwriting	____	____	____

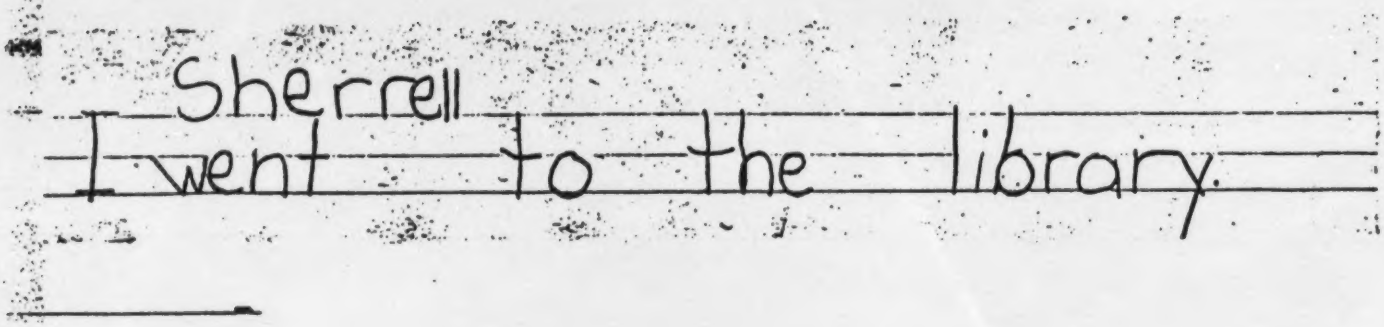
Thank you for your cooperation.

APPENDIX G

HANDWRITING SAMPLE



Appendix E through F contain Frostig Visual Perception Programs which are copyrighted 1972, 1964 by Follett Publishing Co. These programs (Visual Figure-Ground Exercise and Visual Memory Exercise) are not available for ERIC Reproduction. Pages deleted are 41-46.


Sherrell
I went to the library.

Latasha
We made paper flowers.

LiKia
It is very warm today.

Dana

I like to work puzzles.

Marquis

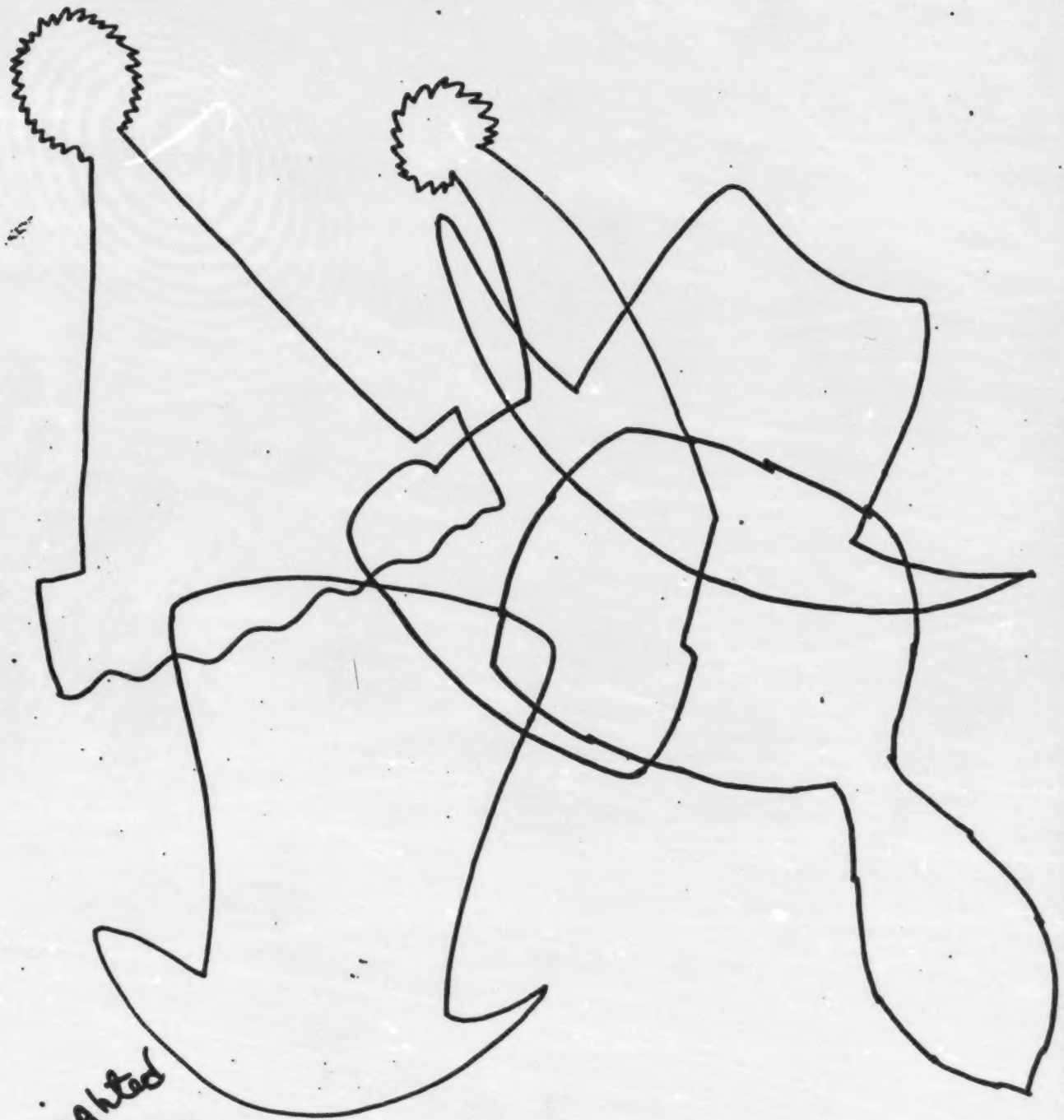
The book is on the table.

Angela
We are in the first grade.

Nikkolas
We will have Art today

APPENDIX E

VISUAL FIGURE-GROUND EXERCISE



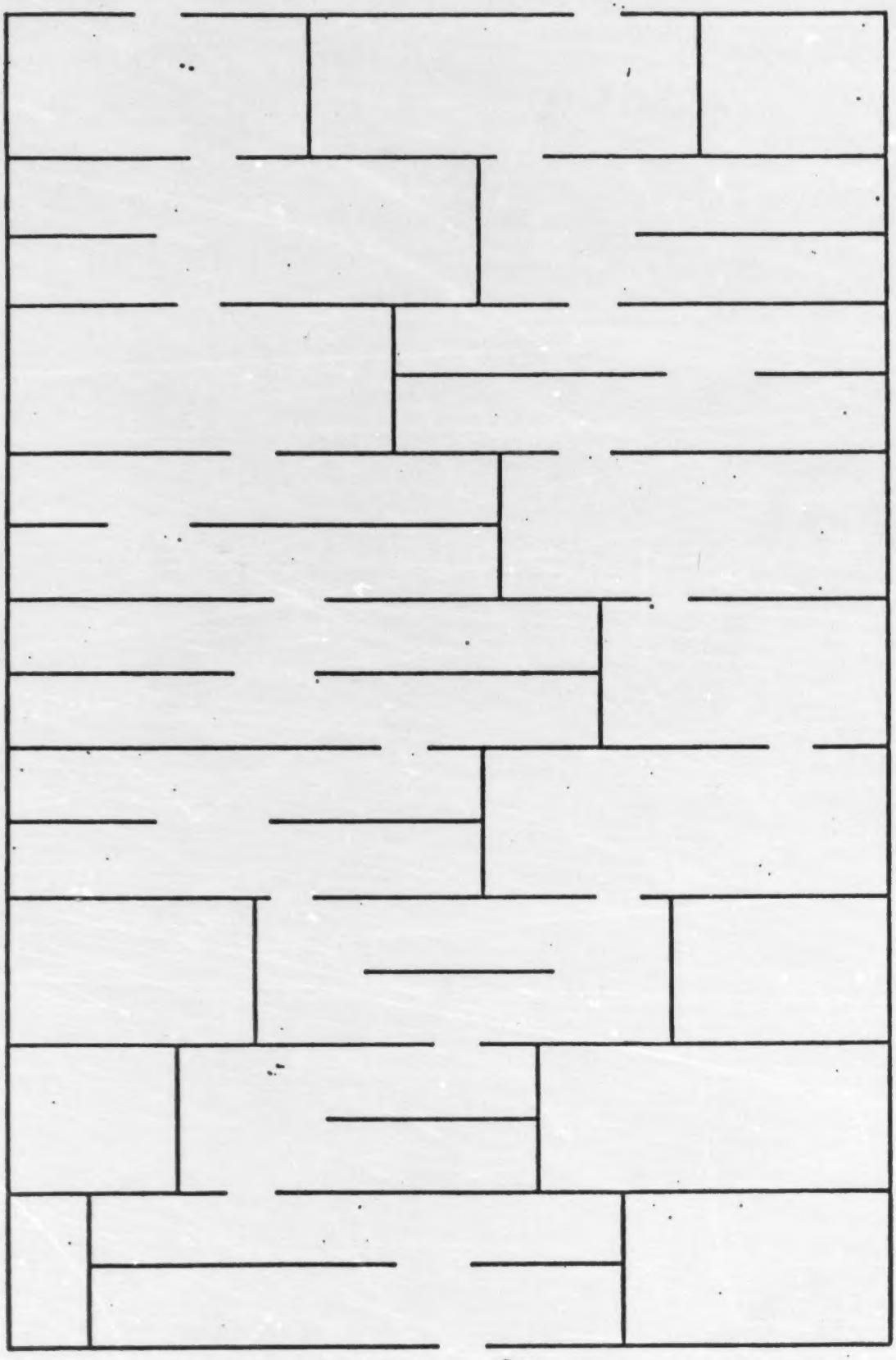
Copyrighted
Pages from
PSO13925
deleted from
orig doc.
Phyllis — Do
not send
to ERIC.

FROSTIG VISUAL PERCEPTION PROGRAM
© 1972, 1964 by Follett Publishing Company

VISUAL FIGUR. GROUND EXERCISE

In

In

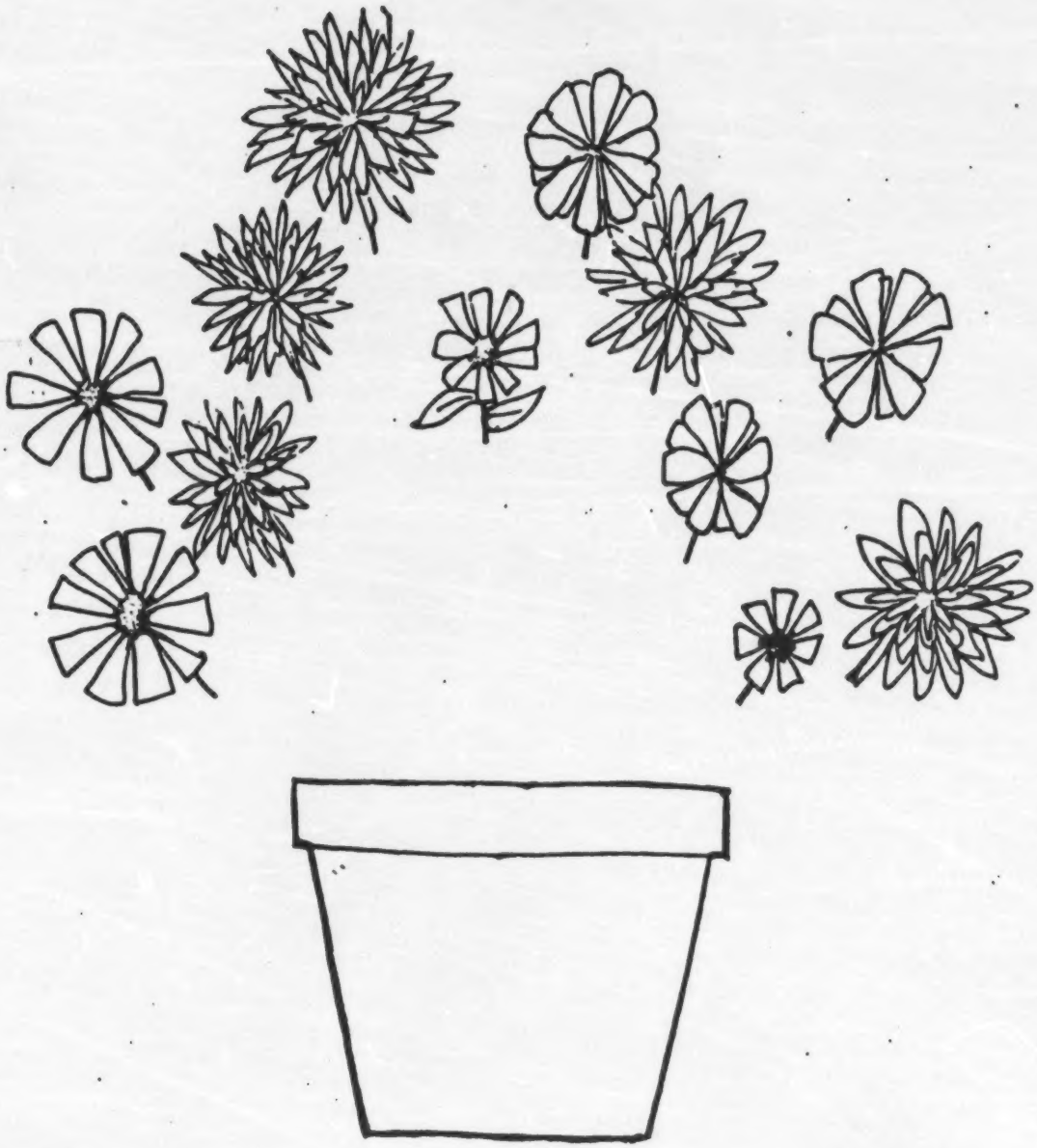


Out

FROSTIG VISUAL PERCEPTION PROGRAM
© 1972, 1964 by Follett Publishing Company

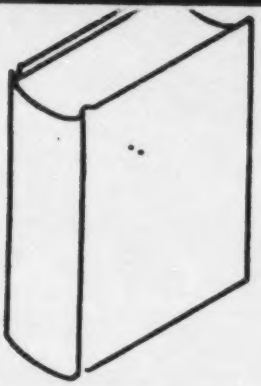
APPENDIX F

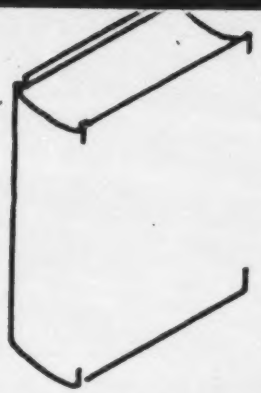
VISUAL MEMORY EXERCISE

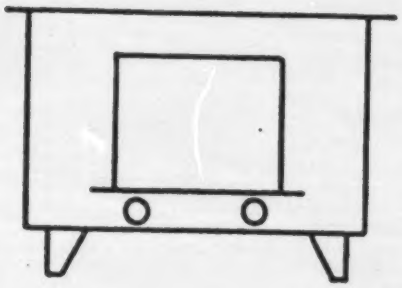


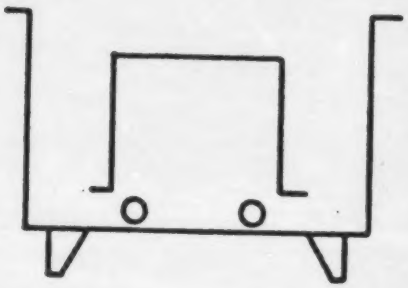
FROSTIG VISUAL PERCEPTION PROGRAM
© 1972, 1964 by Follett Publishing Company

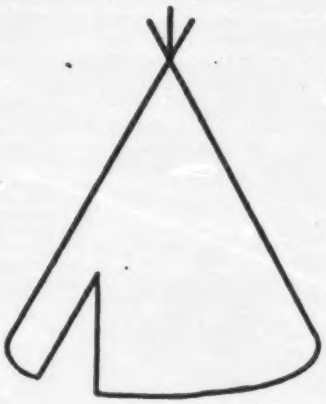
VISUAL MEMORY EXERCISE

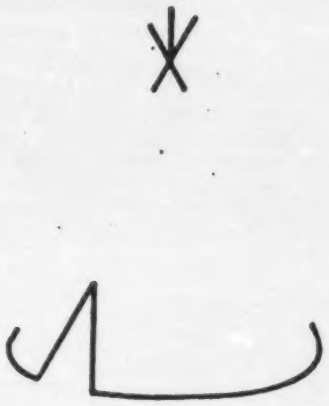


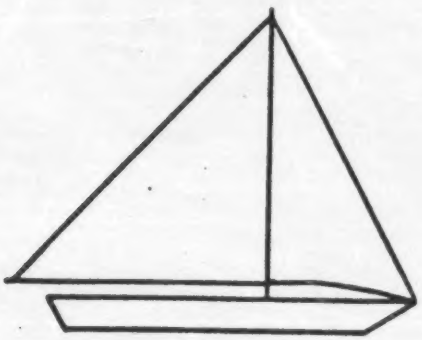


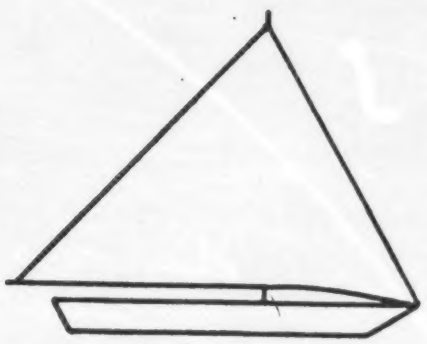






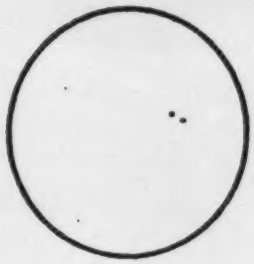


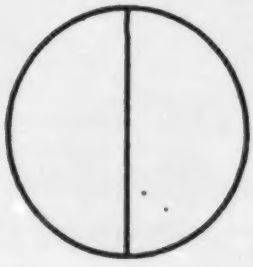


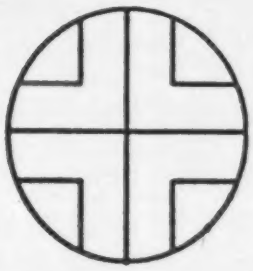


FROSTIG VISUAL PERCEPTION PROGRAM
© 1972, 1964 by Follett Publishing Company

VISUAL MEMORY EXERCISE

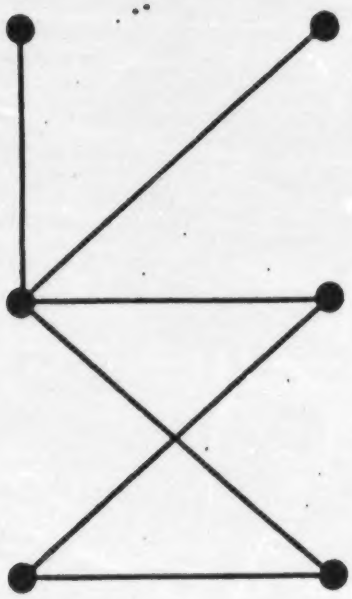


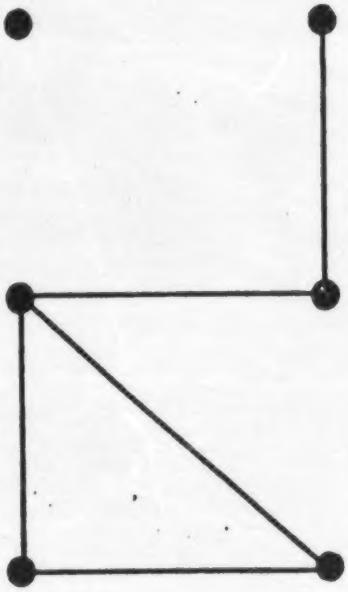




FROSTIG VISUAL PERCEPTION PROGRAM
© 1972, 1964 by Follett Publishing Company

VISUAL MEMORY EXERCISE





FROSTIG VISUAL PERCEPTION PROGRAM
© 1972, 1964 by Follett Publishing Company